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# COMSAC SYMPOSIUM

## Introductory Remarks

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# NASA/DoD Aerodynamic Flight Prediction Workshop

Nov. 19-21, 2002 in Williamsburg, VA



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## General Findings

### Aerodynamic Flight Prediction Workshop

Nov. 19-21, 2002 in Williamsburg, VA



#### Summary Of The NASA/DoD Workshop On Aerodynamic Flight Predictions

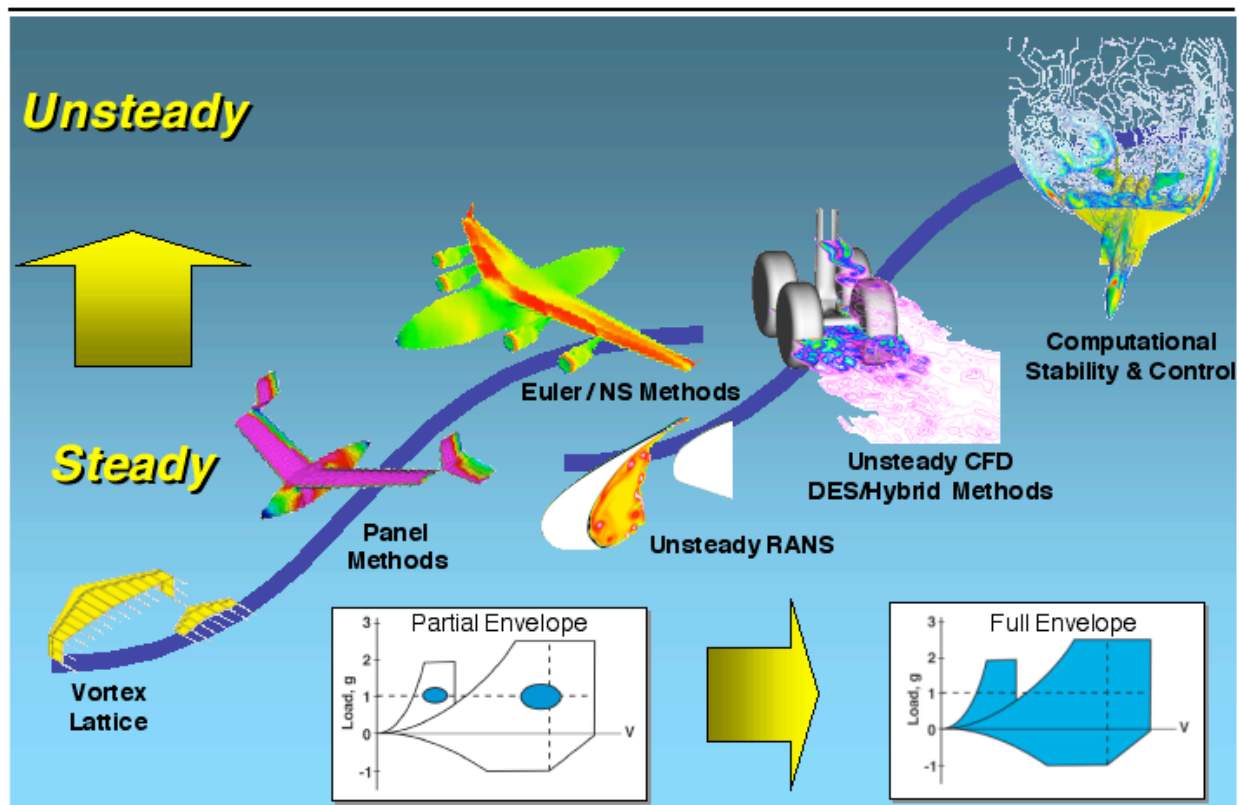
Williamsburg, VA  
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1. **Prediction of the onset of separated flows** across the speed range (with the attendant issues of transition prediction, turbulence modeling, unsteady flows, etc.) and the character and impact of separated flow on aircraft capabilities **is the single most critical fundamental issue to be addressed and should receive a very high priority in aerodynamic R&D programs.**
2. **The issue of Reynolds number impacts on aerodynamic predictions continues to pose significant barriers to advances in the state of the art.** The issues leading to this situation (cost, accuracies, operational difficulties, etc.) should be addressed with high priority.
3. **The loss of corporate knowledge and documentation of lessons learned in aerodynamic predictions is a major area of concern.** As a result of corporate mergers, large turnovers in staffs within government and industry, and fewer aircraft programs, the nation is rapidly losing its cornerstone experience base for the future.



## Future Aerodynamic Prediction Requirements





## Concluding Remarks

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- Future vehicle designs will see a paradigm shift from
  - Steady to the unsteady world (e.g. flow control, adaptive morphing),
  - Passive to active,
  - Rigid designs to exploitation of flexibility and adaptability
  - Few discrete to numerous distributed (e.g. sensors, control surfaces)
  - To obtain a vehicle that is always at optimum performance.
- Therefore, future designs will be inherently multidisciplinary, and the greatest technical challenges and opportunities occur at the intersection of disciplines
- COMSAC appears to be a step towards enabling the future vision